Released by/Date Effective:

Author Name	Title	Signature/Date

Approver Name	Title	Signature/Date

1. PURPOSE

1.1. The purpose of this procedure is to describe the proper use and maintenance of the Milli-Q Integral 3 Water System.

2. SCOPE

2.1. This procedure applies to the HPV Serology Laboratory located at the Advanced Technology Research Facility, Room C2007.

3. REFERENCES

3.1. Milli-Q Integral 3 Water System user manual

3.2. HSL_EQ_019.01: Milli-Q Integral 3 Water System Use and Maintenance Form

3.3. HSL_GL_001: Waste Disposal at the Advanced Technology Research Facility

3.4. HSL_GL_002: Equipment Qualification and Calibration in the HPV Serology Laboratory

3.5. HSL_GL_003: Good Documentation Practices for the HPV Serology Laboratory

3.6. HSL_GL_006: Reagent Preparation for the HPV Serology Laboratory

3.7. HSL_GL_007: Reagent and Chemical Expiry in the HPV Serology Laboratory

3.8. HSL_GL_008: Laboratory Flow and Gowning Procedures for the HPV Serology Laboratory

3.9. HSL_GL_009: HPV Serology Laboratory BSL-2 Procedures

3.10. HSL_GL_010: Control and Request of Documents in the HPV Serology Laboratory

4. RESPONSIBILITIES

4.1. The Research Associate, hereafter referred to as analyst, is responsible for reviewing and following this procedure.

4.2. The Scientific Manager or designee is responsible for training personnel in this procedure and reviewing associated documentation.

4.3. The Quality Assurance Specialist is responsible for quality oversight and approval of this procedure.

5. REAGENTS, CHEMICALS AND EQUIPMENT

5.1. Milli-Q Integral 3 water System

5.2. ROProtect-CR Chlorine Cleaning Tablets (Fisher Scientific, Cat # 58-743-16024 or equivalent).

5.3. Plumbers tape (Fisher Scientific, Cat # NC9033595 or equivalent).

6. HEALTH AND SAFETY CONSIDERATIONS

6.1. Proper safety precautions should be taken while working in a laboratory setting. This includes, but is not limited to, proper protective equipment such as lab coats, safety glasses, closed-toe shoes, and non-latex gloves.

6.2. Refer to the respective SDS when working with any chemicals.

6.3. Refer to "HSL_GL_001: Waste Disposal at the Advanced Technology Research Facility" regarding waste disposal processes at the ATRF.

7. DEFINITIONS

Term	Definition
e.g.	Stands for exempli gratia in Latin, which means "for example".
FME	Facilities, Maintenance and Engineering
HPV	Human Papillomavirus
HSL	HPV Serology Laboratory
SDS	Safety Data Sheets
SOP	Standard Operating Procedure
TOC	Total Oxidizable Carbon
Type I Water	Ultrapure/Reagent Grade/Critical applications
Type II water	Pure/Analytical Grade, used for standard applications

8. OPERATION

Note: Water dispensed from the Milli-Q Integral 3 Water System has Type I water quality.

8.1. To Optimize Water Quality:

Note: The Milli-Q Product Water quality can be optimized before dispensing it.

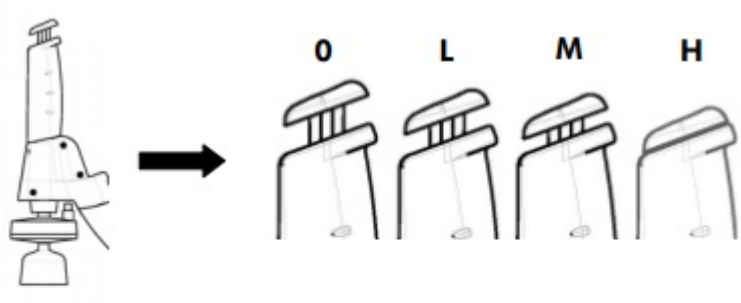
8.1.1. Press the **Recirculation Keypad** button on the Q-POD Keypad (the system will recirculate water for 3 minutes).

8.1.2. Wait for the displayed Resistivity to rise (may take several seconds).

8.1.3. Wait for the displayed TOC to change (may take up to 9 minutes but can be shorter).

8.2. Dispensing Water Using the Q-POD Plunger:

8.2.1. While the system is in **Ready Mode**, press down on the Q-POD Unit plunger as follows:



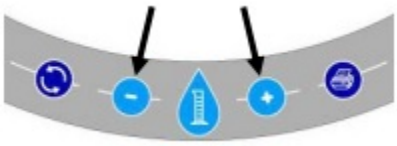
Position	Water flow
0	No water delivered
L	Low Flow (push slightly)
M	Medium Flow (push 1/2 way down)
H	High Flow (push down and hold, release when done)
H	Continuous high flow (push down and release; push down again to stop).

8.3. Dispensing Water volumetrically from the Q-POD Unit:

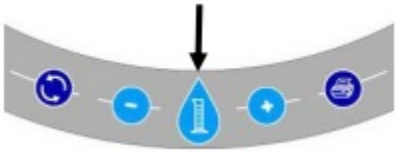
8.3.1. Make sure the Milli-Q System is in **Ready Mode**.

8.3.2. Place the Milli-Q System into a forced recirculation mode. To do this, press the **Recirculation Keypad** button on the Q-POD Keypad. (see picture referred in step 8.1.1).

8.3.3. Press the **(-) / (+)** buttons to change the desired amount of water.



8.3.4. Press the **Volumetric Dispensing** button. The Q-POD Unit will start dispensing water a few seconds later.



8.3.5. When the volumetric dispensing is finished, the Q-POD Display will look like the picture below for 3 minutes.

8.3.6. After 3 minutes, the Q-POD Display will look like the picture below.

8.4. Dispensing Type II water:

8.4.1. The Milli-Q Integral 3 water system has a reservoir tank that provides type II water.

8.4.2. A hose connected to the nozzle is available to dispense type II water directly from the reservoir tank.

8.4.3. Turn the lever on the nozzle forward to open the valve and to dispense type II water and turn the nozzle back to close the valve.

9. MAINTENANCE

9.1. Contact the contracted vendor to perform the appropriate preventive, scheduled maintenance and calibration of the Milli-Q Integral 3 Water System when prompted to by an LCD message.

9.2. Document the maintenance that was performed on HSL_EQ_019.01: Milli-Q Integral 3 Water System Use and Maintenance Form.

9.3. Cleaning Maintenance Schedule:

9.3.1. **Sanitizing** the RO Cartridge(s): (When prompted to by an LCD message or as necessary).

Note: **Sanitizing** performs *Cl_2 cleaning* of the RO cartridge.

Step	Action	Diagram
1	• Go to STANDBY Mode. • Allow the Milli-Q System to depressurise for a few seconds.	
2	Use the Sanitisation Port Removal Tool and loosen the cap.	
3	Remove the cap.	

Note: Do not use the Sanitization Port Removal Tool to tighten the cap.

9.3.1.1. Follow the steps below to **Sanitize** the RO Cartridge(s):

Step	Action	Diagram
1	Place a chlorine tablet into the Sanitisation Port.	
2	Put the cap back on and tighten it.	
3	Go to STANDBY Mode.	
4	• Select <Menu>. • Press ◐.	

Step	Action	Diagram
5	• Select <Sanitise/Clean>. • Press ▶.	
6	• Select <RO CL2 Cleaning>. • Press ▶.	
7	• Press ↙. • The RO CL2 cleaning mode will last 19 minutes.	
8	When the cleaning is finished, the Milli-Q System automatically goes into READY Mode.	

9.3.1.1. Document the maintenance that was performed on HSL_EQ_019.01: Milli-Q Integral 3 water System Use and Maintenance Form.

10. ATTACHMENTS

10.1. Not applicable

11. REVISION HISTORY

Revision Start Date	Version #	Changes	Reasons
22Mar17	New	New SOP for use and maintenance of Milli-Q Integral 3 Water System	Currently no SOP

Frederick National Laboratory for Cancer Research sponsored by the National Cancer Institute	HPV Serology Laboratory Standard Operating Procedure	
Milli-Q Integral 3 Water System Use and Maintenance Form		
Form ID: HSL_EQ_019.01 Associated SOP: HSL_EQ_019	Version 1.0	Page 1 of 1

Equipment ID:	Calibration Date:	Calibration Due Date:

Date	Initials	Activity Performed	Cleaning Reagent Used/ Lot Number
			□ N/A
			□ N/A
			□ N/A
			□ N/A
			□ N/A
			□ N/A
			□ N/A
			□ N/A
			□ N/A
			□ N/A
			□ N/A

Review By/Date:	
QA Review By/ Date:	